

SOME SISYMBRIUMS (CRUCIFERAE)
NATIVE TO TEXAS AND NORTHEASTERN
MEXICO

REED C. ROLLINS

The very close relationship of certain species of *Romanschulzia* to *Sisymbrium* has been recognized from the time of the founding of the former genus. In fact, it was established upon species then considered to belong to *Sisymbrium*. More recently (1956, 1957) I have been faced with the problem of species placement in the borderline area between the two genera. In general, *Romanschulzia* is characterized by having flowers with exserted, spreading stamens that are nearly equal in length, and by siliques borne on a definite gynophore. In several of the species, the calyx is calyptrate, being shed by the expanding anthers at anthesis. In addition, the cauline leaves are strongly auriculate and they are markedly differentiated from the basal leaves when present, which are petiolate. But some species of *Sisymbrium* have strongly auriculate cauline leaves and the basal leaves are more or less petiolate. So the line between these two genera, as with many other pairs or groups of genera in the *Cruciferae*, is a very tenuous one in certain boundary areas between them.

Several species of auriculate-leaved *Sisymbriums* of northeastern Mexico and extreme western Texas are of interest, not only because of their impingement on *Romanschulzia* but because only recently have we obtained sufficient material to provide an adequate basis for careful study. The problems posed by these materials range from nomenclatural ones to the accurate assessment and characterization of some little known or undescribed species. The first problem, touched on briefly by M. C. Johnston (1957), needs careful treatment because of the related species I wish to discuss and define.

Sisymbrium Vaseyi Watson in Robinson,
Syn. Fl. N. Am. 1: 138. 1895.

In a curious treatment of this name, Payson (1922) listed it as a synonym of his newly proposed *Sisymbrium Watsonii*, at the same time attempting to produce a new *Sisymbrium*

Vaseyi based on *Thelypodium Vaseyi* Coulter. Such a transfer could not be legally made because of the preoccupation of the name in *Sisymbrium* by *S. Vaseyi* Watson. The result of Payson's action was that he proposed a new name for the wrong species. The name *Sisymbrium Vaseyi* Watson is legal in every respect, and the type, collected by G. R. Vasey in Las Vegas, New Mexico, in 1881, is in the Gray Herbarium. A second specimen, with the locality given as "mts. west of Las Vegas, N. Mex., G. R. Vasey 41, 1881" may possibly be part of the same collection, but this is not a certainty. This second collection, if it be that, is one of the two collections cited by Coulter (see below) when he described *Thelypodium Vaseyi*. Whether Watson's type was the same collection as that cited by Coulter is immaterial in the present problem because the two collections cited by Coulter, one by Vasey and the other by Nealley, belong to two different species. It is clear that Watson's intention was to describe a new species, for "n. sp." is written in his own hand after "Sisymbrium (?) Vaseyi" on the label of the holotype. The effect of Robinson's action in publishing Watson's name, *Sisymbrium Vaseyi*, was to restrict the application of the name *Thelypodium Vaseyi* Coulter to the species represented by the Nealley specimen, which became the type, since Coulter had not himself chosen a type for the name. Robinson, as author of the treatise on *Sisymbrium* in the Synoptical Flora, was the one who supplied notes and a description for Watson's name and there was no confusion in his treatment whatever.

Sisymbrium Vaseyi Watson is so far known only from New Mexico. I think Johnston's (l. c.) statement that it is Mexican must have been a slip. The species associated with the name *Thelypodium Vaseyi* has been known from extreme southwestern Texas and now has turned up in Tamaulipas, Mexico. It must now be known by the following name:

Sisymbrium Shinniersii M. C. Johnston,
Southwestern Nat. 2: 129. 1957.

Based on *Thelypodium Vaseyi* Coulter, Contrib. U. S. Nat. Herb. 1: 30. 1890; not *Sisymbrium Vaseyi* Watson.

Coulter cited two collections following the description of

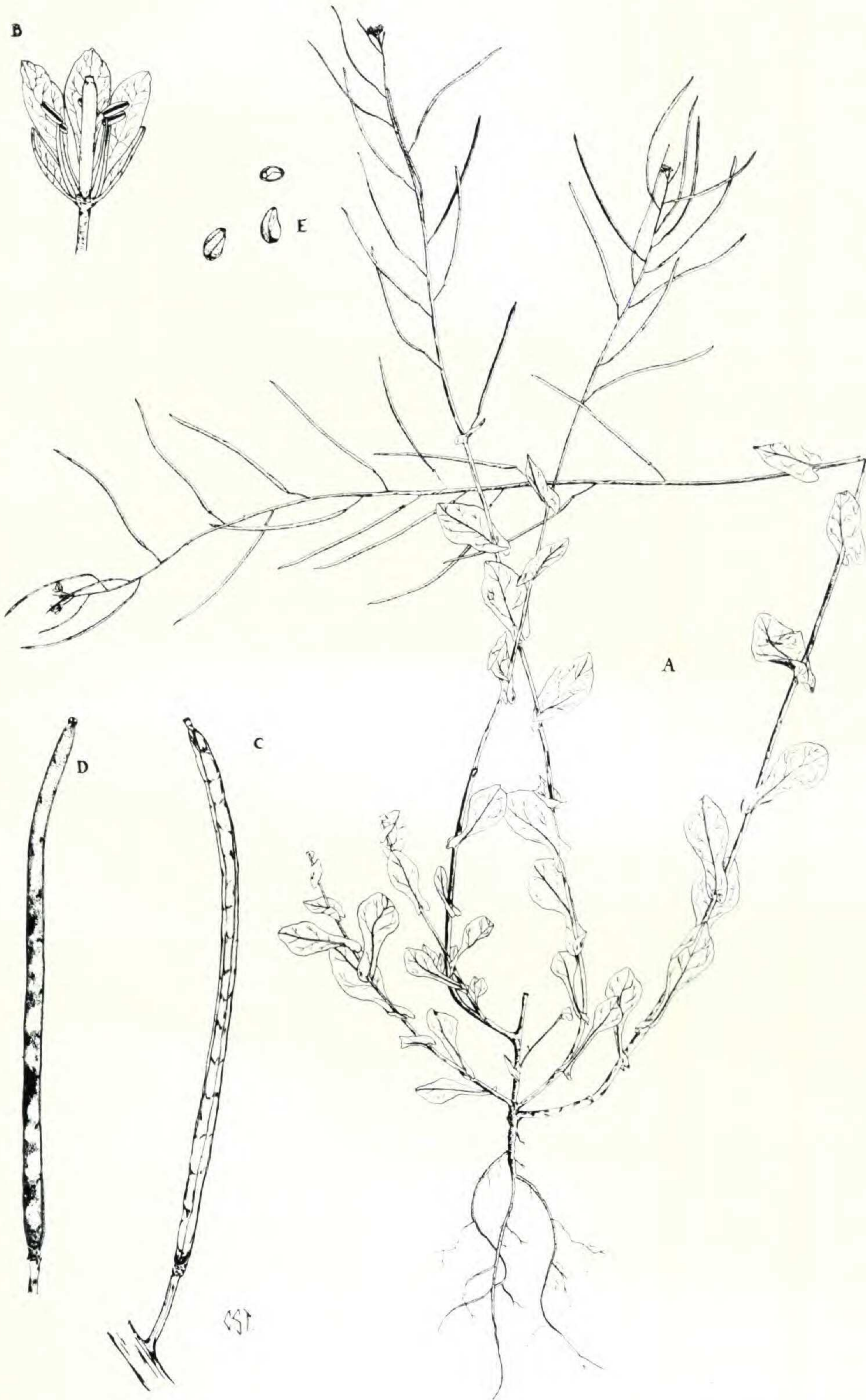


FIG. 1, A-E. *Sisymbrium Shinnersii* M. C. Johnston. A — habit sketch $\times 1/3$; B — flower with stamen and petal removed $\times 3$; C — silique and pedicel $\times 1$; D — replum showing funiculi $\times 1$; E — seeds, surface and sectional views, $\times 3$. Drawings by C. S. Tsao.

T. Vaseyi: "near Rio Grande City, Texas (Nealley); also collected in 1881 by G. R. Vasey (No. 29) in the mountains west of Las Vegas, New Mexico, in immature condition." Coulter further states, "Vasey's plants were too young to be characterized, although Mr. Watson, to whom the specimens were submitted, considered them as probably representing a new species. Mr. Nealley's specimens supply nearly mature pods, which may become longer than noted in the description." When this evidence is added to the fact that Coulter's paper is entitled, "Upon a collection of plants made by Mr. G. C. Nealley, in the region of the Rio Grande, in Texas, from Brazos Santiago to El Paso County", it is clear that the type of *Thelypodium Vaseyi* is, and ought to be, the Nealley specimen.

Johnston's short note proposing the new name *Sisymbrium Shinnersii* gave one new citation, that of *Runyon 3788*, in addition to those of Payson (l. c.). We now have the following recent collections to report that amplify and extend considerably the previously known range of this species. TEXAS: Cameron County, 6 miles northeast of Olmito, April 20, 1959, *Rollins and Correll 5953* (GH, LL); 3 miles northwest of Russelltown, near San Benito, April 20, 1959, *Rollins and Correll 5954* (GH, LL); Arroyo Colorado, just south of Harlingen, April 21, 1959, *Rollins and Correll 5956* (GH, LL); Barreda Tract, Barreda, April 11, 1941, *Runyon 2521* (GH). MEXICO: Tamaulipas, region of Rancho Las Yucas, ca. 40 km. nnw. of Aldama, Municipio de Aldama, July 25, 1957, *R. L. Dressler 2014* (GH); same locality, October 16, 1957, *R. L. Dressler 2427* (GH). *S. Shinnersii* is illustrated in fig. 1.

***Sisymbrium arcuatum* Rollins, sp. nov.**

Annual; stem single from base, erect, weak, usually branched at each node, occasionally simple, glabrous, 5-10 dm. high; leaves all sessile and auriculate, entire, lower nearly pandurate, gradually becoming ovate to broadly oblong upward, glaucous beneath, greenish above, 2-8 cm. long, 1-4 cm. wide; inflorescences terminating each branch lax and much elongated; sepals purplish, glabrous, narrowly oblong, nonsaccate, 3-4 mm. long, ca. 1 mm. wide; petals white, spatulate with a slender claw, 5-6 mm. long, ca. 2 mm. wide; filaments not swollen at base, 3-4 mm. long; filaments of single stamens not appreciably shorter than those of paired stamens; anthers purplish, ca. 2 mm. long; siliques terete, slender, sessile, widely spreading, becoming somewhat pendulous, slightly arched downward to nearly straight, 1-3-

nerved, 8-10 cm. long, about 1 mm. in diameter; styles 1-1.5 mm. long; stigmas unexpanded; pedicels spreading to slightly recurved, 8-11 mm. long, slightly expanded at summit; seeds immature, wingless, oblong.

Herba annua; caulibus erectis vel cernuis ramosis glabris 5-10 dm. altis; foliis sessilibus amplexicaulibus auriculatis integris glabris 2-8 cm. longis, 1-4 cm. latis, inferne panduratis vel ovatis, superne ovatis vel late oblongis; sepalis purpureis nonsaccatis anguste oblongis 3-4 mm. longis; petalis albis spathulatis 5-6 mm. longis; pedicellis fructiferis patentibus tenuibus glabris 8-11 mm. longis; siliquis sessilibus anguste linearibus teretibus patentibus vel late pendulis plus minusve arcuatis 8-10 cm. longis, ca. 1 mm. in diametro; stylis 1-1.5 mm. longis; seminibus immaturis oblongis immarginatis.

Type in the Gray Herbarium collected on a slope in open pinyon forest, 1-2 miles southwest of Pablillo, Nuevo León, Mexico, July 21, 1958, *D. S. Correll and I. M. Johnston 19941*. Isotype in the Lundell Herbarium, Texas Research Foundation.

Sisymbrium arcuatum is nearest related to *S. Shinnersii*. From the latter, it differs in having much longer, arcuate and widely spreading more or less pendulous siliques and somewhat pandurate lower leaves. In *S. Shinnersii*, the siliques are divaricately ascending, straight and with a maximum length of about 6 cm. instead of 10 cm. as in *S. arcuatum*. In the latter species, the pedicels are widely spreading and somewhat arched downward, whereas in *S. Shinnersii*, the pedicels are rigidly divaricate, straight and always ascending. Both species have very slender siliques.

***Sisymbrium Purpusii* (Brandege) O. E. Schulz,**

Pflanzenr. 86, (IV, 105) 58. 1924.

Based on *Thelypodium Purpusii* Brandege, *Zoe* 5: 232. 1906.

Annual; stems single from the base, erect, branched at nearly every node; glabrous, leafy, 3-7 dm. high; branches ascending, dense; lower leaves sinuate-dentate to somewhat lobed, thin, glabrous, with a broad and conspicuous central vein, petiolate, oblanceolate, obtuse, 6-15 cm. long, 1-3 cm. wide, petiole winged; cauline leaves becoming sessile and auriculate, sparsely dentate to entire, middle and upper leaves lanceolate and amplexicaule; sepals greenish, oblong, scarious-margined, nonsaccate, glabrous, 3-3.5 mm. long, ca. 1 mm. wide; petals spatulate, with a slender claw, white, 4-5 mm. long, ca. 1.5 mm. wide; filaments of single stamens markedly shorter than those of the paired stamens, filaments of paired stamens 3-4 mm. long; anthers oval, less than 1 mm. long; pedicels slender, divaricately ascending to nearly erect, straight, glabrous, 1-1.5 cm. long; immature siliques narrowly linear, terete, straight, ascending, 4-7 cm. long, ca. 1 mm. in diameter; styles ca. 1 mm. long.

The above amplified description of *S. Purpusii* takes new-

ly found Texas specimens into account. This Texas material is the first from the United States and the only specimens I have seen other than the two Purpus collections cited by Brandegees at the time the species was proposed. Dr. M. C. Johnston informs me that the place of collection, as indicated below, is relatively inaccessible. The following numbers are in the Gray Herbarium: *M. C. Johnston and B. H. Warnock 3734, 3735 and 3736*, all collected at an altitude of 3,300 ft. in different habitats on the McCormick Ranch, small lateral canyon southwest of Old Smith Ranch, near Fresno Canyon, Presidio County, Texas, March 1, 1959.

Sisymbrium Purpusii is in the general alliance of *S. Shinnersii* and *S. arcuatum* but the species is not closely related to either of them. In particular, the leaves are of a different shape and texture. The plants of *S. Purpusii* tend to be leafy and the branching is often rather virgate with the branches markedly ascending. The considerably elongated lower leaves are petioled and sinuate to somewhat lobed in contrast to the sessile and auriculate comparable lower leaves of both *S. Shinnersii* and *S. arcuatum*. In none of these species is there a strictly basal rosette. The nearest approach to this is in *S. Purpusii* in particular plants that grow slowly at first, producing short internodes between the leaves. But in such instances the leaves are merely crowded and the leaf arrangement is not a rosette in the usual sense.

The anthers of *S. Purpusii* are oval and less than half as long as those of either *S. arcuatum* or *S. Shinnersii* where the anthers are oblong in shape. The nearest relative of *S. Purpusii* is *S. Kearneyi*, a species at present known only from the Grand Canyon of Arizona. — GRAY HERBARIUM OF HARVARD UNIVERSITY.

LITERATURE CITED

- JOHNSTON, M. C. 1957. *Sisymbrium Shinnersii*. *Southw. Nat.* 2: 129.
PAYSON, E. B. 1922. *Species of Sisymbrium Native to America North of Mexico*. *Univ. Wyo. Publ.* 1: 1-27.
ROLLINS, R. C. 1956. Some New Primitive Mexican Cruciferae. *Rhodora* 58: 148-157.
———, 1957. Miscellaneous Cruciferae of Mexico and Western Texas. *Rhodora* 59: 61-71.